The part devoted to systematic paleontology contains the description of some two hundred species and varieties, of which sixteen are new. Most of these are figured on the fifty-eight plates. There is also a bibliography of Cambro-Ordovician literature.

A. C. McF.

Contributions to the Pre-Cambrian Geology of Northern Michigan and Wisconsin. By R. C. ALLEN and L. P. BARRETT. *The Geology of Limestone Mountain and Sherman Hill in Houghton County, Michigan.* By E. C. CASE and W. I. ROBINSON. Michigan Geological and Biological Survey, Publication 18, Geological Series 15, 1915. Pp. 189, pls. 12, figs. 15.

Part I consists of a number of contributions on the geology of an area lying west of the Crystal Falls and Iron River districts, and extending south of the Marquette and Gogebic iron ranges to the state line and into Wisconsin beyond. The region is a great Huronian interior in which the better-known and structually distinct ranges on its north and east borders coalesce and lose their identity. The authors are unable to say that rocks older than the Huronian are present, but find that the area heretofore mapped as Archaean and undifferentiated pre-Cambrian is in reality Huronian. The outstanding feature of the region is the presence of an enormous granite mass intruded into the Lower and Middle Huronian sediments, constituting a great batholith which seems to occupy many thousands of square miles in northern Wisconsin, and is represented by outlying remnants in the east end of the Gogebic range and southwest and east in Michigan. The contributions consist of the descriptions of the geology of a number of districts and ranges, together with discussions and some revisions of the correlations of the pre-Cambrian rocks of the region.

An important conclusion arrived at by the authors is that the formations heretofore included in the Upper Huronian are separable into two groups by an unconformity of the first magnitude. For the upper one of the two the name Copps is proposed.

Part II: Limestone Mountain and Sherman Hill are outliers of Paleozoic dolomite found in Houghton County. The stratigraphic range is from the Cambrian to the Middle Devonian, including the Cambrian Upper Black River, Decorah, Upper Galena, Richmond, Niagaran, and Middle Devonian. Belief in the presence of the Devonian is based on a piece of float found on the hillside. The structure has

been worked out in detail and includes numerous minor faults. The great importance of the work lies in the establishing of the Ordovician, Silurian, and Devonian seas in the region. The similarity of the Ordovician fauna of this region with that of Minnesota and Wisconsin indicates they were all part of the same invasion. Good faunal lists are given.

A. C. McF.

Maps and Sections to Accompany Report on Contributions to the Study of the Geology and Ore Deposits of Kalgoorlie, East Coolgardie Goldfield. Perth: Geological Survey of Western Australia, Bulletin 69, Part III, 1917.

The gold deposits at Kalgoorlie, Australia, are of two types, the gold-quartz veins and the gold-telluride deposits. The bed rock of the region outside of some minor metamorphosed sediments consists of granite and amphibolite schists. It is with the last-named that the gold is usually found. *Bulletin 69* consists of fourteen plates showing the areal and structural geology of the region.

A. C. McF.

Eleventh Biennial Report of the State Geologist on the Mineral Industries and Geology of Vermont. By GEORGE H. PERKINS, *et al.* Burlington, 1917–18. Pp. 209, pls. 18, figs. 10.

The present report consists of a number of contributions by different authors on the geology of the state of Vermont. These are as follows:

I. "Physiography of Vermont," by G. H. PERKINS.—The discussion and description of the physiography is given in a popular though thorough style. The physiographic history, which is rather complex, is well summarized. The mountain areas include regions of complex igneous and metamorphic history. Most of the large rivers are old and antecedent in character. The author believes that most of the lakes of the state are glacial in origin.

II. "The Ordovician Terranes of Central Vermont," by CHARLES H. RICHARDSON.—The formations discussed are all pre-Trenton in age and include, from base upward, the Irasburg conglomerate, the Memphremagog slates, and Waits River limestone. A brief summary of the geologic history of the state is given.

III. Post-Glacial Sea-Level Waters in Eastern Vermont," by H. L. FAIRCHILD.—Mr. Fairchild describes the post-glacial marine features found in the eastern part of the state, thus supplementing an earlier